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Virtual Worlds: It's About the Learning

EAHCS 2014

- No conflicts of interest to disclose

The Monotillation of Traxoline

- It is very important that you learn about traxoline. Traxoline is a new form of zionter. It is monotilled in Ceristanna. The Ceristannians gristerlate large amounts of fevon and then bracter it to quasel traxoline. Traxoline may well be one of our most lukised snezlaus in the future because of our zionter lescelidge.

1. What is traxoline?
2. Where is traxoline monotilled?
3. How is traxoline quaselled?
4. Why is traxoline important?

Note on Paper:

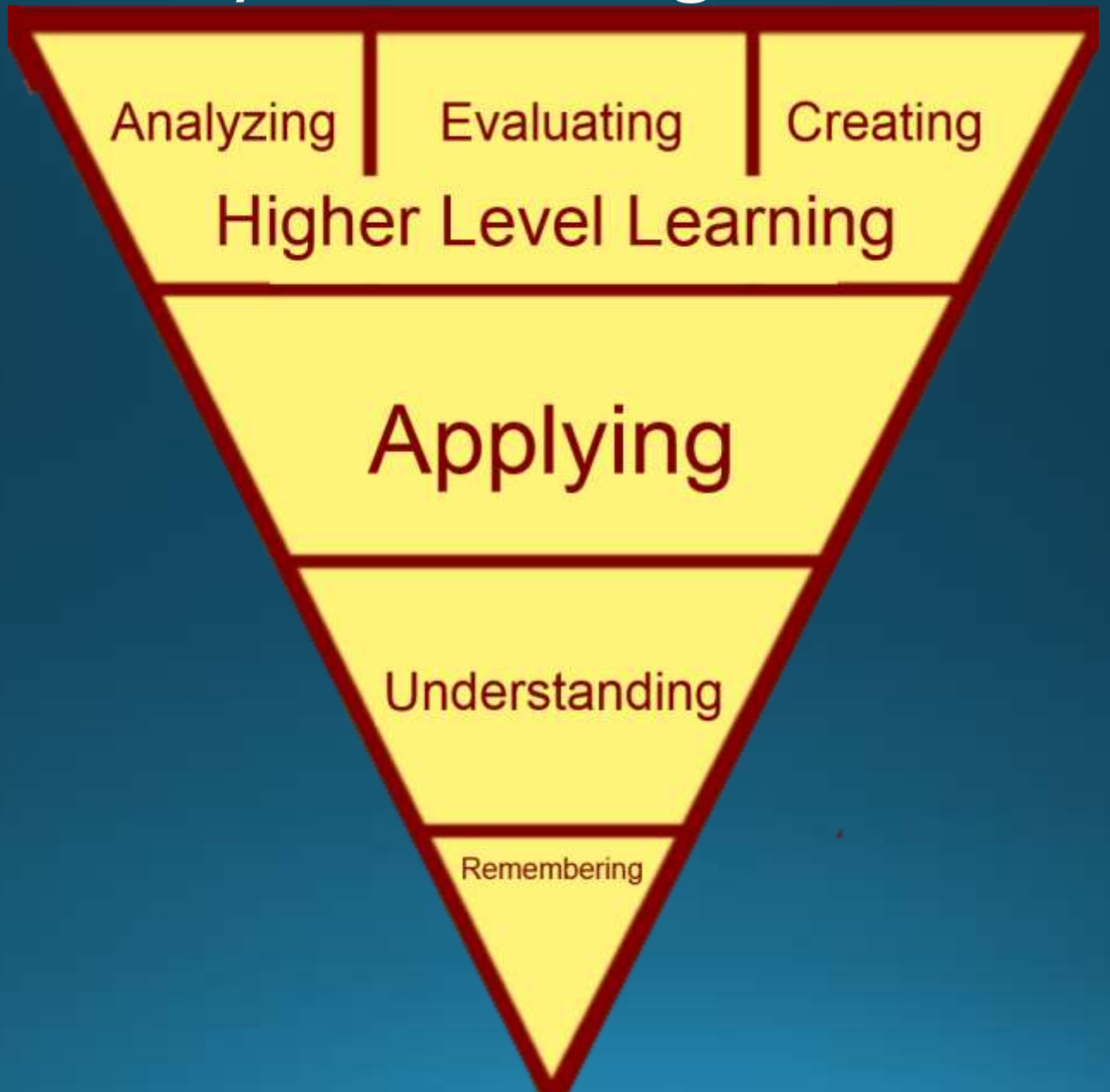
- Your favorite non-science lesson
- Your favorite science/medical lesson (from K-today)
- A science lesson where you learned the most
- Your favorite teacher (K- today)

- What was your favorite non-science lesson like?
- What was your favorite science lesson like?
- Was it a lecture?
- What did you do to learn the most?
- What made your favorite teacher your favorite?

Making Learning Objectives/Outcomes

- Imagine you are going on a trip. Where are you going? How are you going to get there? How will you know when you arrive?
- Objectives or Outcomes guide instruction
  - What learning (knowledge and skills) will your students have when they have successfully completed an activity or course? (Outcome)
  - How will they get there? (Activities, lecture, etc)
  - How will you know if they arrived? (Assessment)

Bloom's Taxonomy of the Cognitive Domain (revised)



Knowledge	Understand	Apply	Analyze	Evaluate	Create
define	explain	solve	analyze	reframe	design
identify	describe	apply	compare	criticize	compose
describe	interpret	illustrate	classify	evaluate	create
label	paraphrase	modify	contrast	order	plan
list	summarize	use	distinguish	appraise	combine
name	classify	calculate	infer	judge	formulate
state	compare	change	separate	support	invent
match	differentiate	choose	explain	compare	hypothesize
recognize	discuss	demonstrate	select	decide	substitute
select	distinguish	discover	categorize	discriminate	write
examine	extend	experiment	connect	recommend	compile
locate	predict	relate	differentiate	summarize	construct
memorize	associate	show	discriminate	assess	develop
quote	contrast	sketch	divide	choose	generalize

Bloom, B. (1956) A Taxonomy of Educational Objectives, The Classification of Educational Goals-Handbook I: Cognitive Domain. New York: McKay.

Examples of Virtual Environment Objectives/Outcomes

- The student will be able to create a tour guide through the cell explaining the organelles and their functions.
- The student will analyze a scenario and evaluate whether the environment presented is a healthy one.
- The student will design and create a virtual habitat demonstrating the requirements needed to maintain life in a closed environment.

Teaching thoughts

- Tell me, I (might) remember.
- Show me I'll probably remember.
- Let me do it and I know I'll remember and I can use it.

Learning Strategies

- Active Learning Strategies
  - Problem-based or case-based learning
  - Collaborative learning
  - Experiential learning
  - Skill acquisition activities
  - Active discussion
  - Discussion during a lecture (back-chat).
  - Technology

- Passive Learning Strategies
  - Lecture (including podcasts)
  - Passive reading

Why technology?

- You can do things you can't do otherwise.
- Your students have to be active learners
- Believe it or not, they struggle a bit (Vygotsky's Zone of Proximal Development) – that's not bad.
- It's fast (where did people get answers BG)?
- Other?

Types of technology-based learning

- Reference (Google, TED talks, YouTube)
- Apps
- Simulations
- Course Management Systems
- Virtual environments (Virtual worlds)

Web 2.0 Technologies

For technology to be effective…

- The activity must match the desired outcomes.
- The students need to know what the outcomes are and how the activity achieves them.
- The technology must function correctly.
- Directions must be readily available and clear.
- Instructors need to provide guidance and support throughout.
- Students need to be given time to learn the skills.

Why THIS technology?

Virtual Worlds

- Subset of Virtual Reality applications
- Online computer-generated environments
- Users can be in different locations
- Real-time interaction in the same 3D space
- *Habitat* (1987) - first 2D virtual world
- *Worlds, Inc.* (1995) - first 3D virtual world

Terminology

- Virtual worlds
- Immersive learning environments
- Multi-user virtual environments
- Virtual simulations
- Virtual environments
- Screen-based simulations

Online Social Networking & Business Collaboration World
DIGITAL WORLDS: SOCIAL, VIRTUAL, MOBILE
lamp
CYWORLD
twinity
kaneva
BUILDABEARVILLE.COM
MUSIC MOGUL
make your mark.
Whyville
vSide
OSGRID
THE OPENSOURCE METAVERSE
Barbie girls
moove ONLINE
FUR ELTERN
PRESSE
MOKITOWN
KidsCom.com
Play Smart, Stay Safe, Have Fun!™
DIGITALSPACE
weblin
The Manor
the next generation in 2-D visual chat
MULTIVERSE
Changing the <virtual> world.
Lively by Google
LEGO UNIVERSE
SECOND LIFE
FOOTBALL SUPERSTARS
Disney CLUB PENGUIN
go Supermodel
WORLDS.com
the 3D entertainment portal
There
HIPIHI
Qwaq
gaia ONLINE
YoVille
CROQUET CONSORTIUM
Poptropica
EXPLORE COLLECT COMPETE
Webkinz
Come in and Play!
ExitReality
The Entire Web in 3D
xivio
activeworlds
meez
metaplace
vastpark
Prototerra
Blurring the line between reality and imagination
moshi monsters
CITY OF HEROES
imvu BETA
HABBO
hangout for teens
Amazing worlds
VOODOO CHAT
ROCKETON
stardoll
Fame, fashion and friends
THE FORMAT FACTORY
Gary Hayes, Head of Virtual Worlds, TPF and Director LAMP@AFTRS
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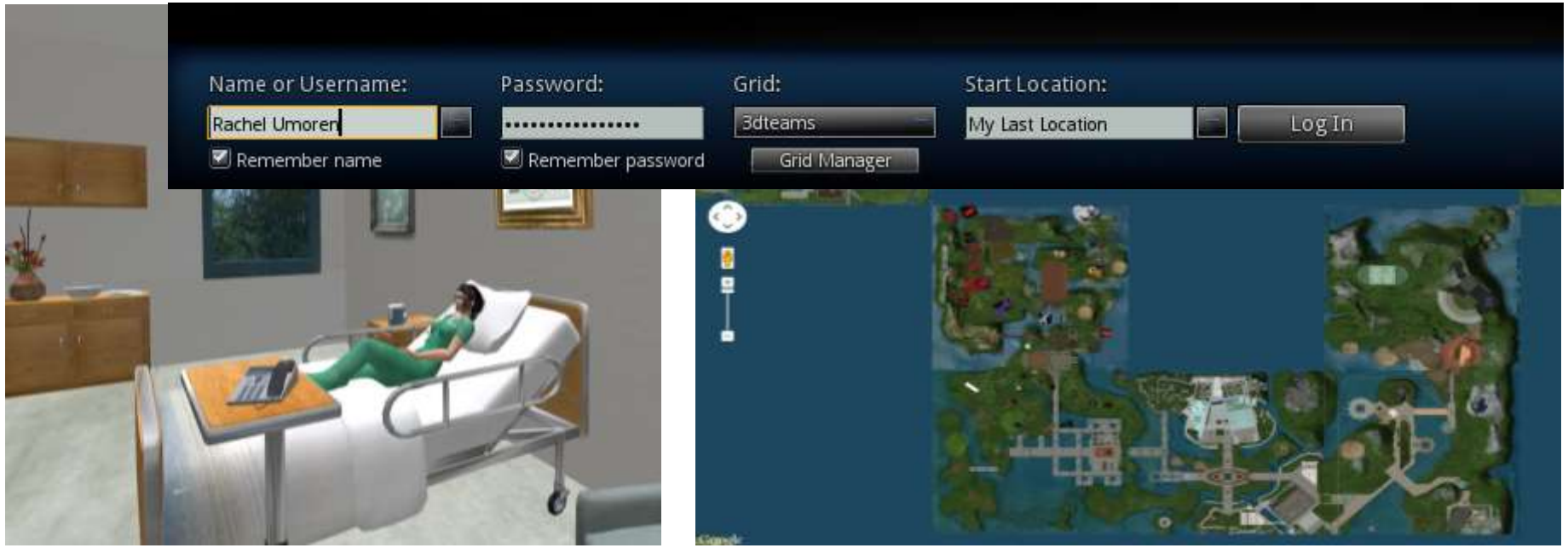
THE PROJECT FACTORY

Types

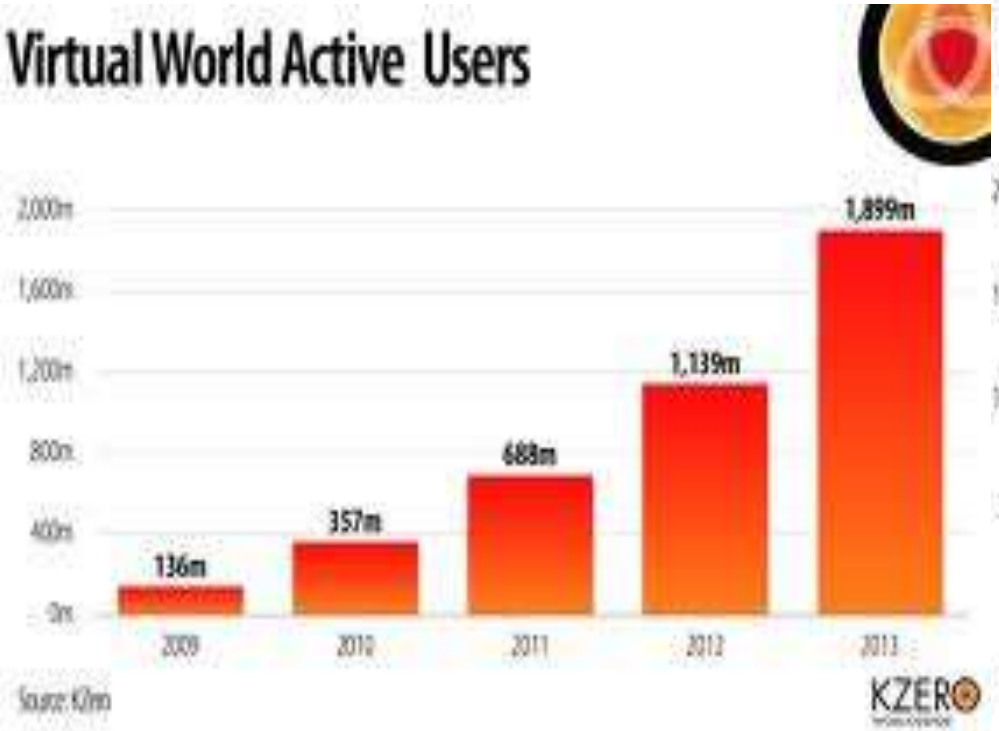
- Viewer-based simulations
- Browser-based simulations

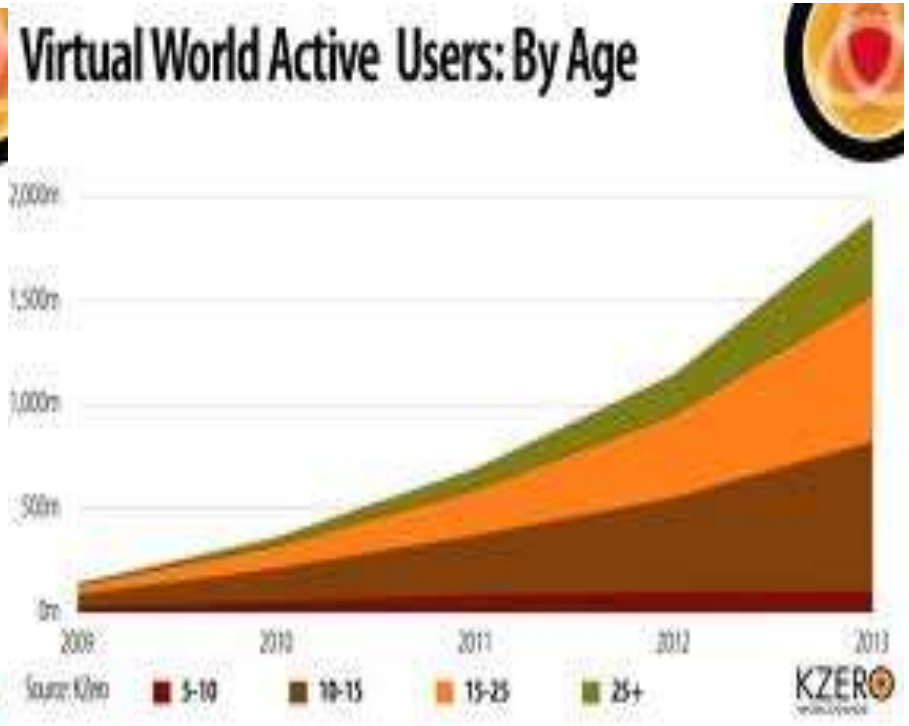
- **Viewer-based environments**
  - Open source or commercial e.g. Kitely, Open simulator, Second Life
  - Requires a viewer program to access simulation
  - Regions arranged in grid
  - Instructor and learners can make changes to environment in real-time



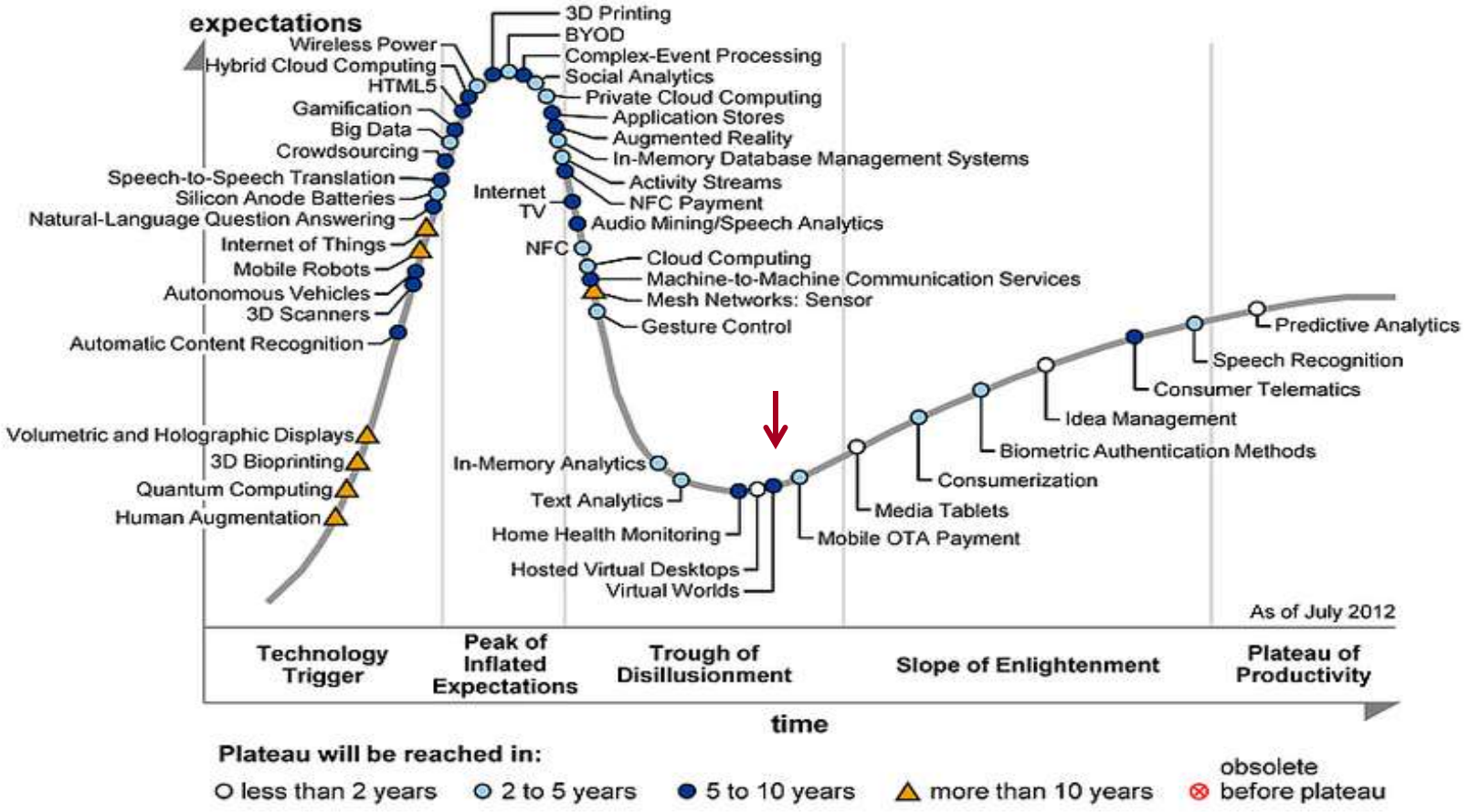
- **Browser-based environments**
  - Single user or multi-user proprietary platforms e.g. Unity3D, Avaya Webalive, Protosphere
  - Accessible through a web browser
  - Good fidelity but requires professional graphics design
  - Cannot modify in real-time

Active Users



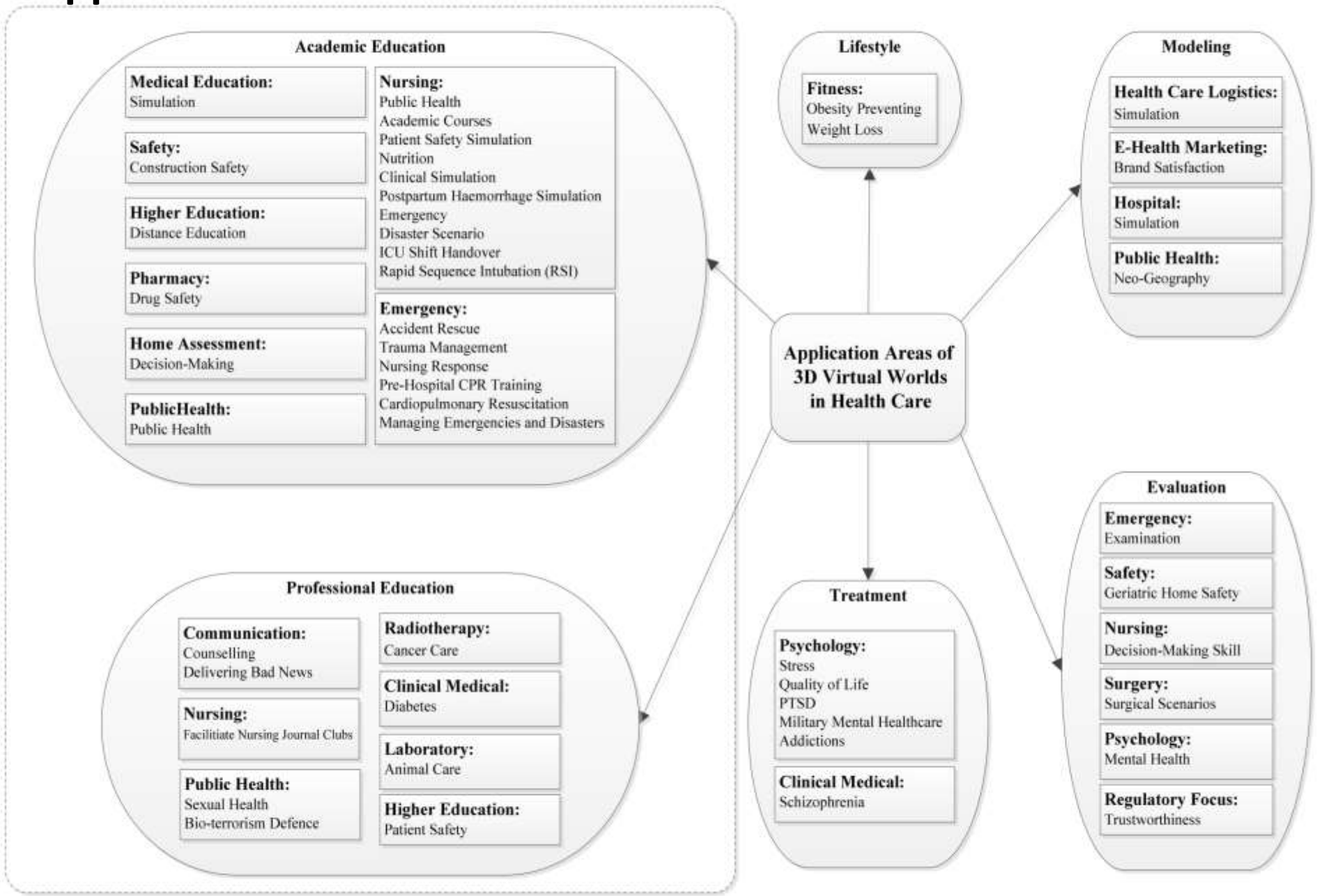


Technology Trends



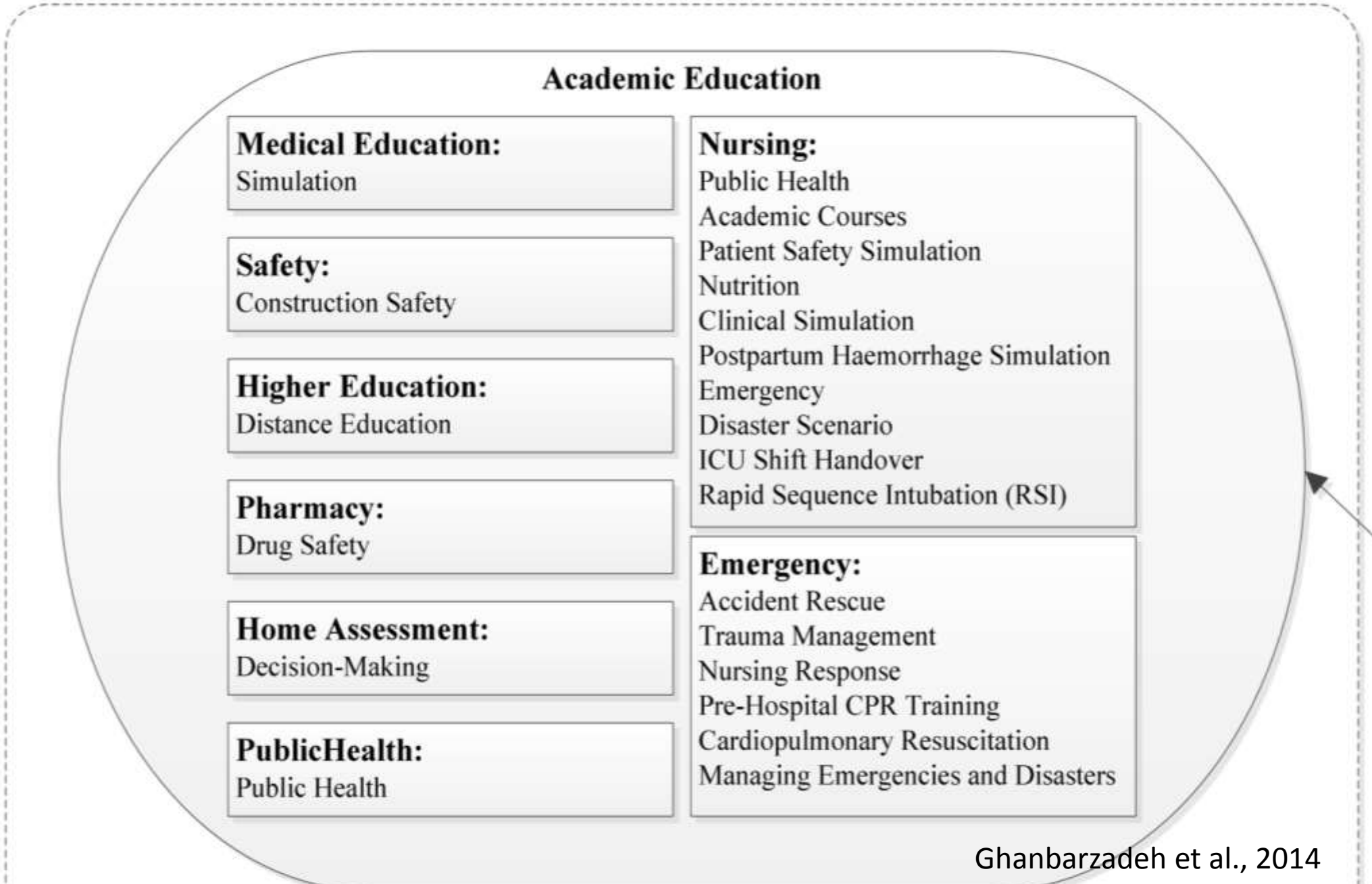
NMC Horizon Report: 2012 Higher Education Edition

Applications in Healthcare



Ghanbarzadeh et al., 2014

Application of 3D Virtual Worlds in Health Care



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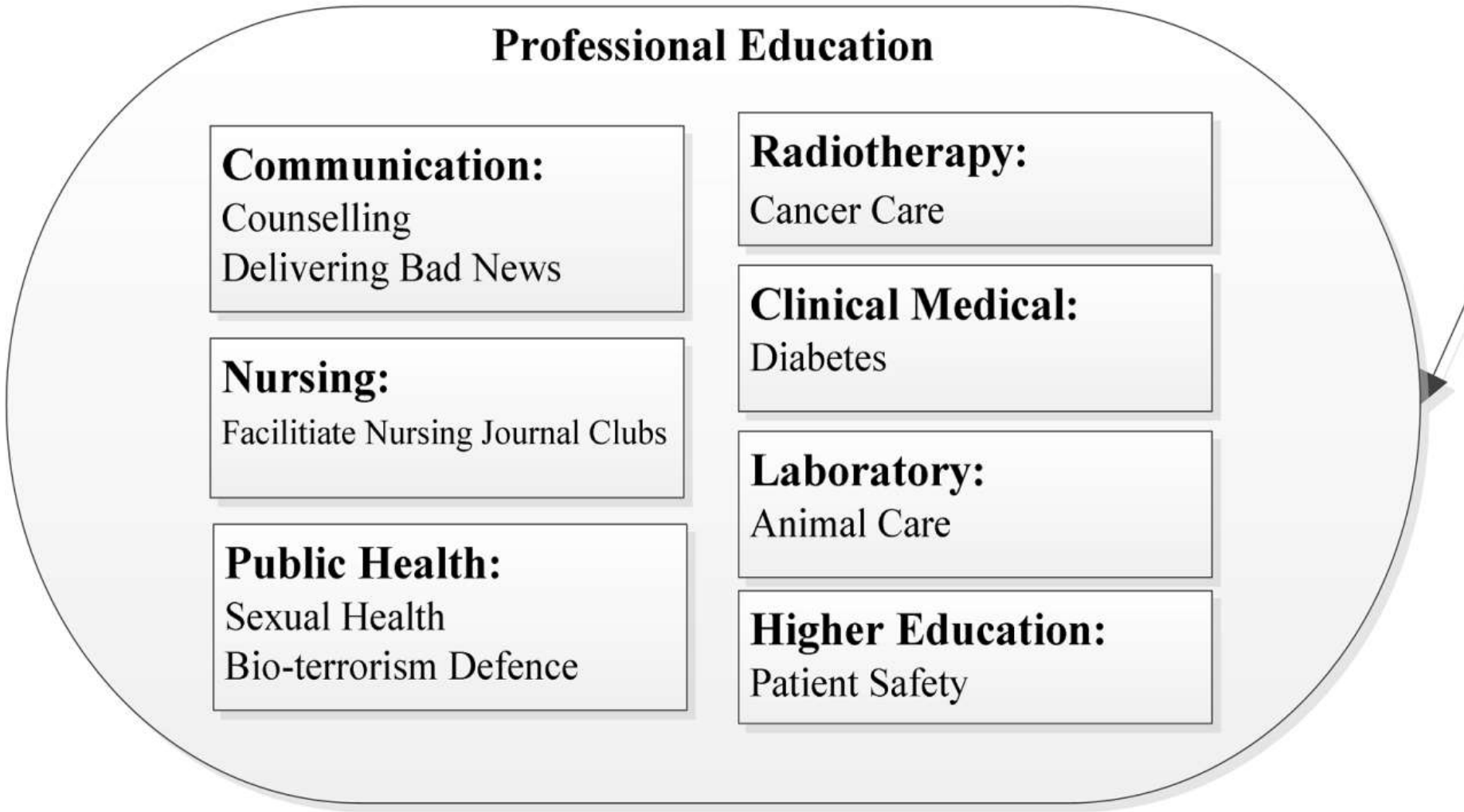

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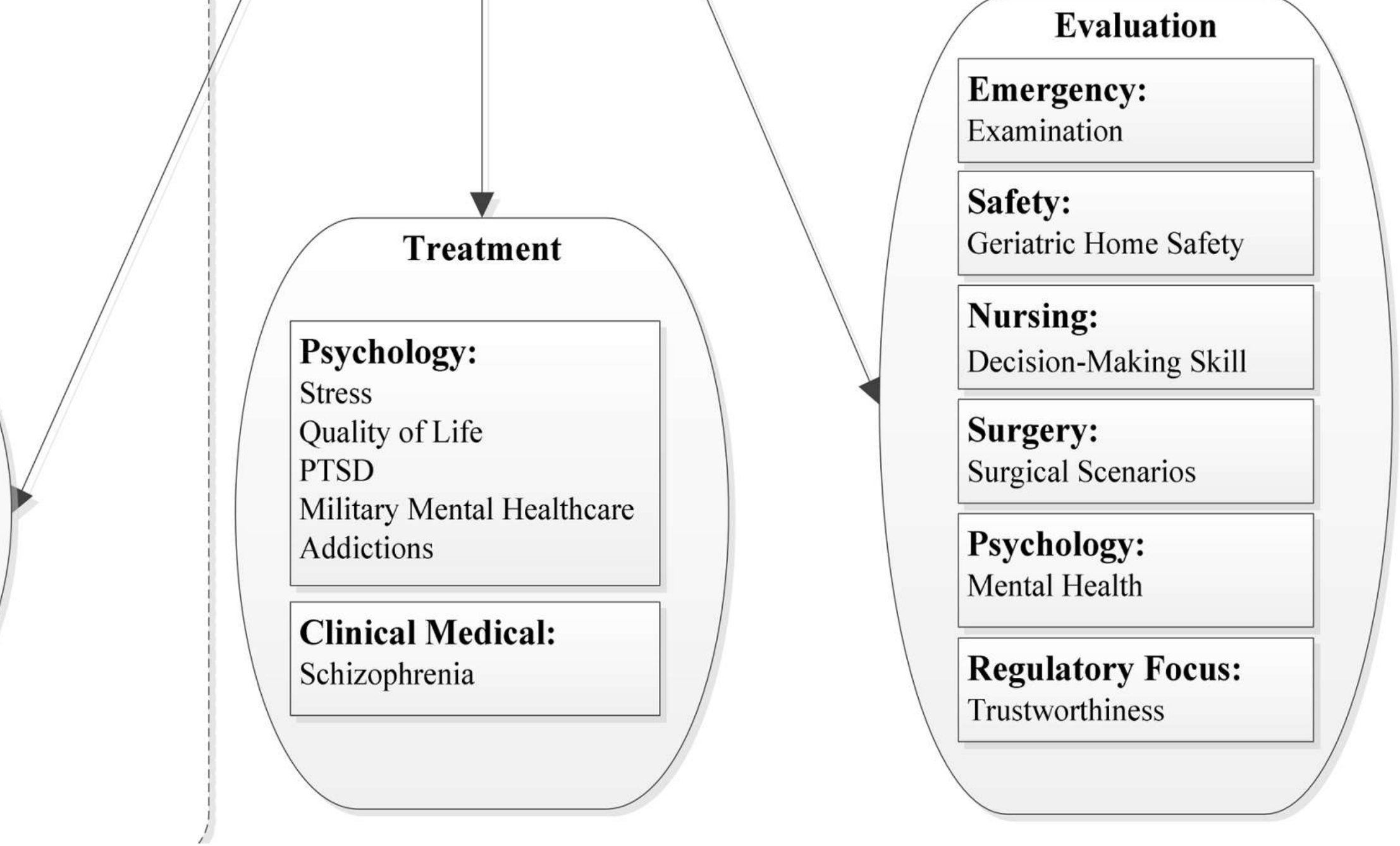

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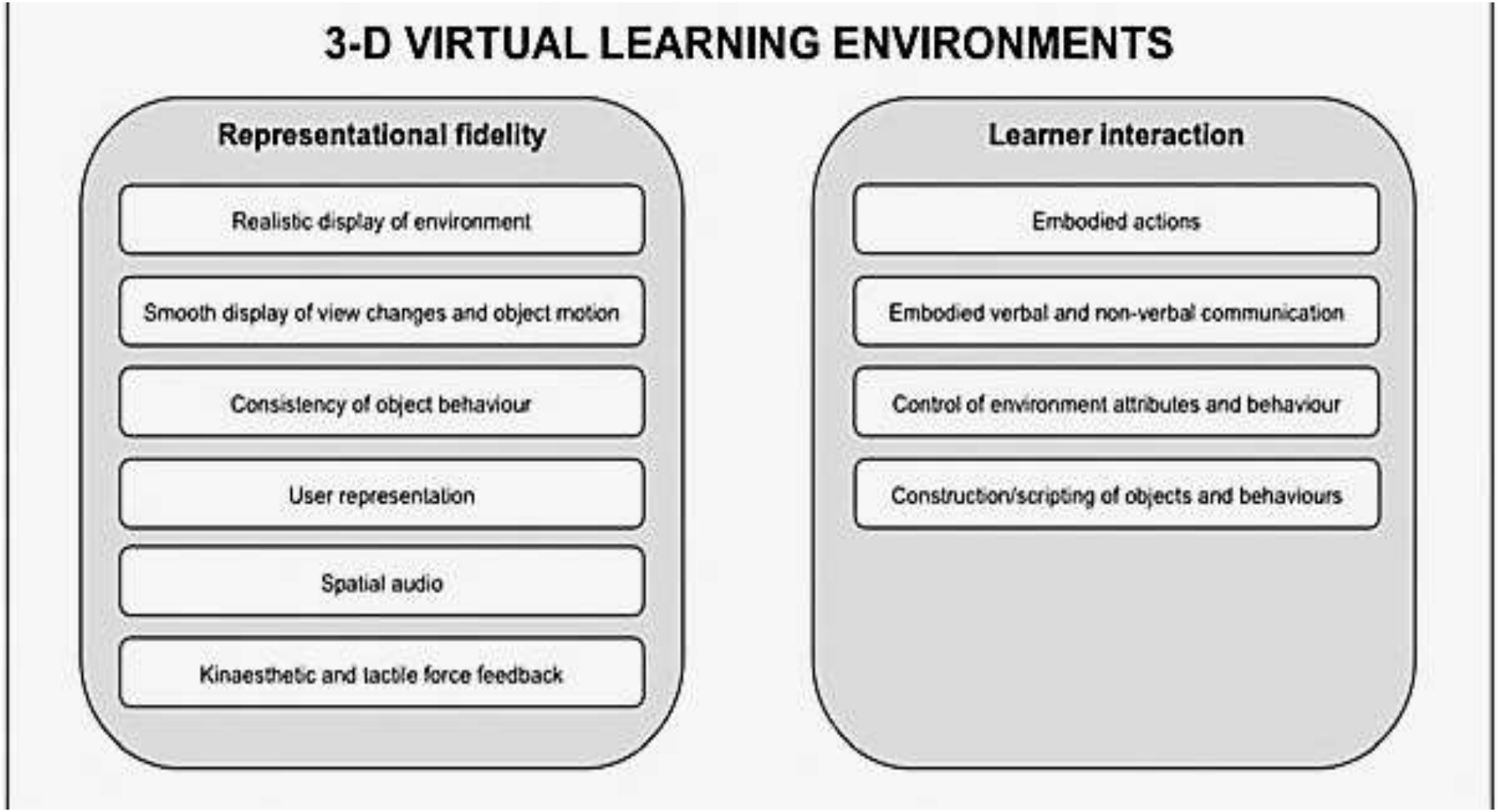
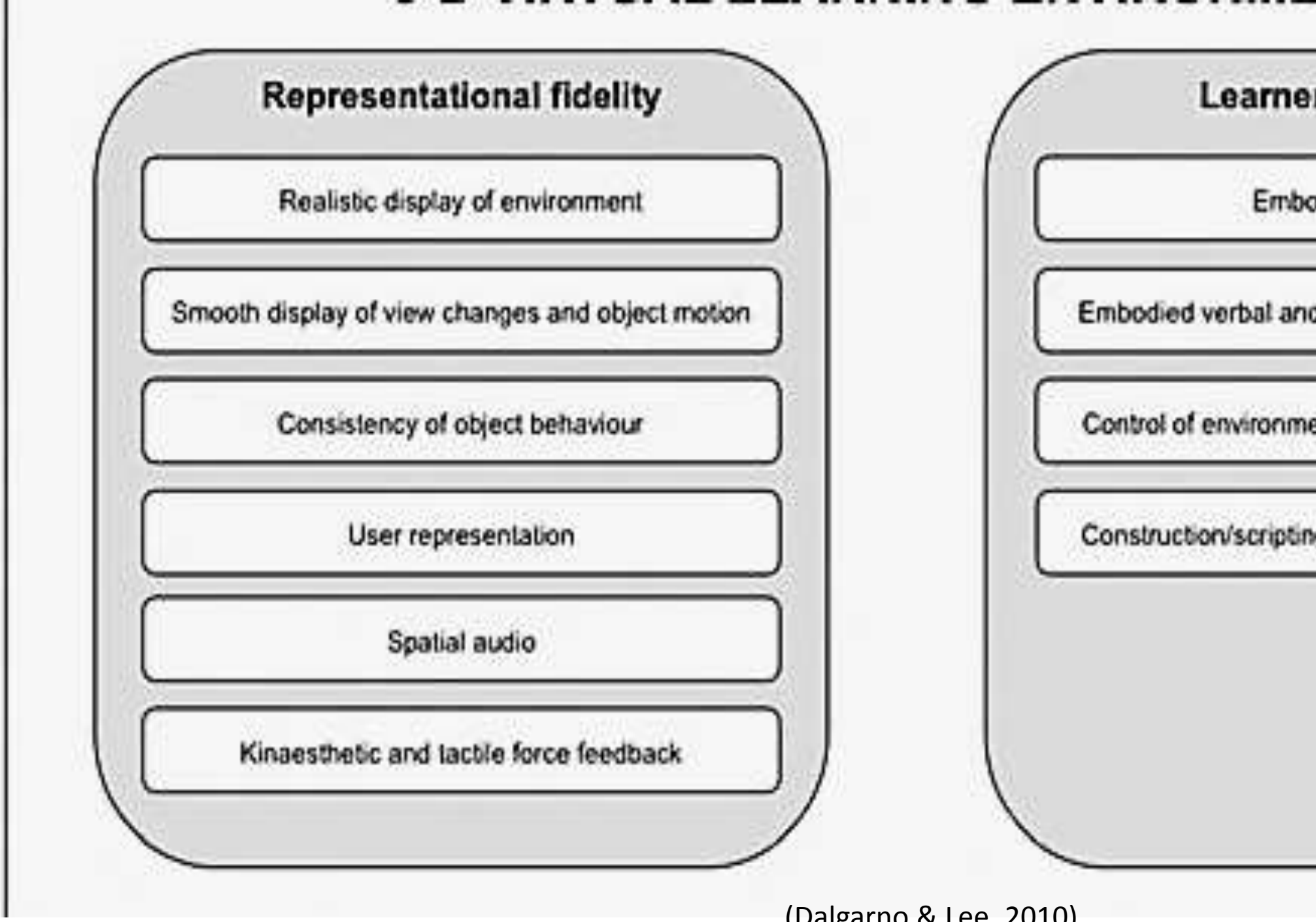


(Dalgarno & Lee, 2010)



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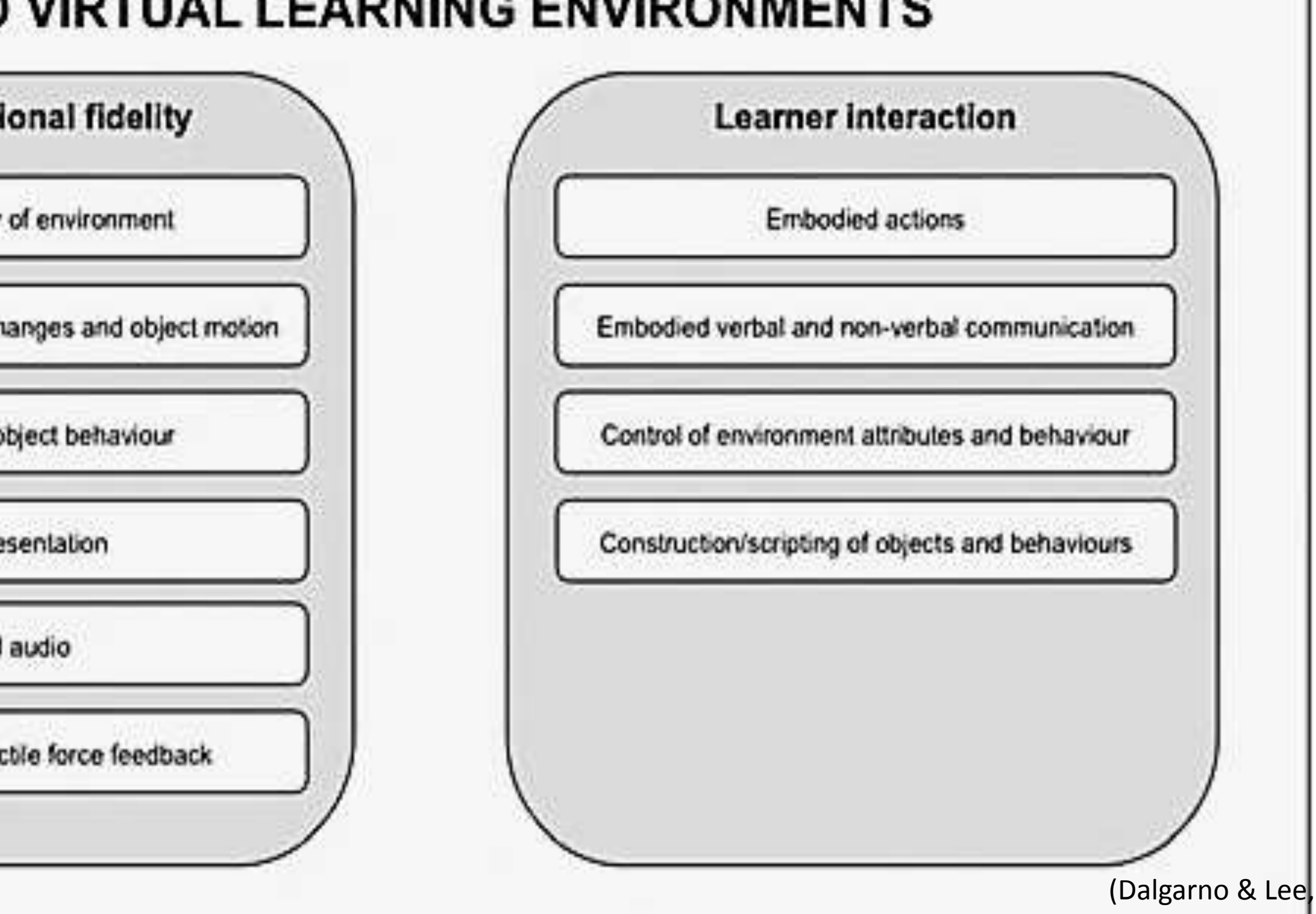

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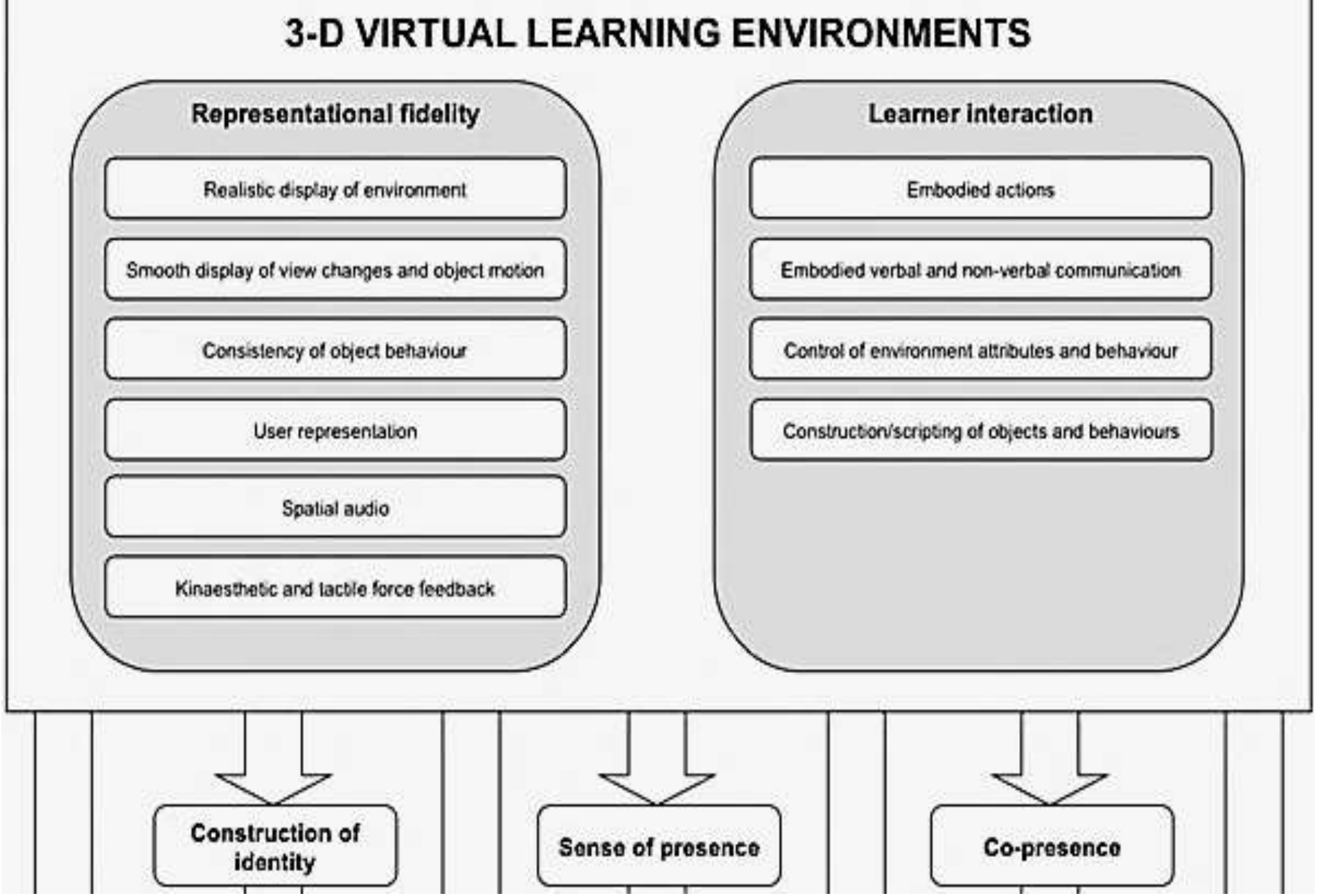

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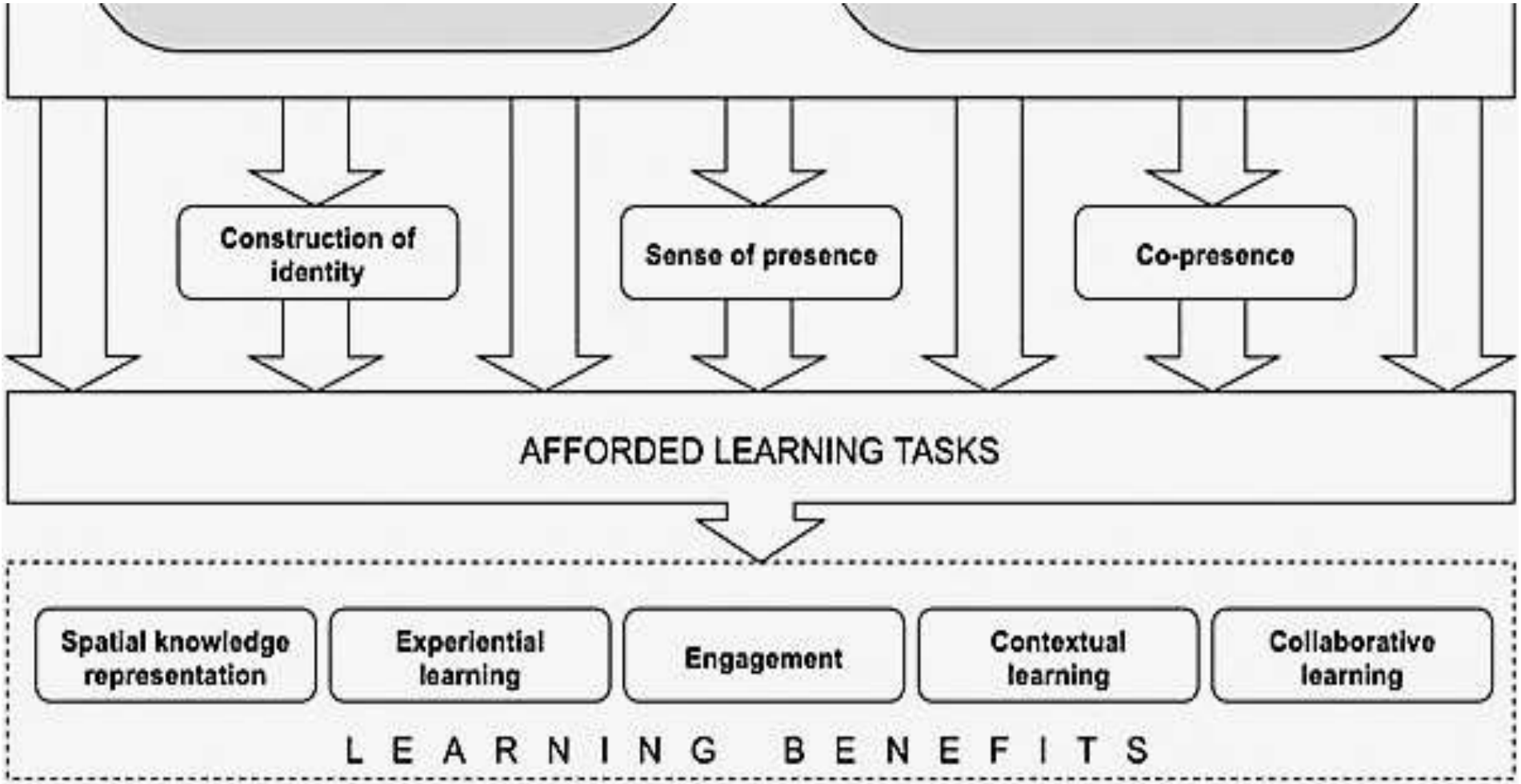

(Dalgarno & Lee, 2010)

Challenges

- Orientation is needed for learners
- Instructors need training on how to create learning modules
  - For best results, content experts should partner with computer scientists and graphic artists
- Affordable, but cost is still an issue
- Technical Needs – newer computer and high speed internet connection
- Expanding field with theoretical frameworks and evidence to support learning still being defined

(Butina et al, 2013)

Benefits

- Engages learners
- Helps explain difficult concepts
- Allows for simulations too costly, difficult, unethical or hazardous in the real world
- Allows integration of artificial intelligence

Savin-Baden M, 2010; Brydges R, 2010; Palmer, E 2011; Chapman, D 2010

Benefits

- More efficient use of clinical sites
- Availability through the internet
- Standardization of learning experiences
- Ease the learners' transition to manikin-based sim and clinical practice
- Student assessment tool

Savin-Baden M, 2010; Brydges R, 2010; Palmer, E 2011; Chapman, D 2010

Questions?

Where Are You with Virtual Environments?

- Who has used virtual environments for learning or teaching?
- Who has headed an e-learning project?
- Who has designed an e-learning or simulation course?
- Who has conducted an e-learning or simulation course?
- Who has participated in an e-learning or simulation course?
- Who knows about e-learning but has not participated in a course?
- Who can use the internet?